

Work Order ID 123917

123917

Page 1

September-02-14 9:15:55 AM

Item ID: D119-646-211

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Skidtube with Run-On Landing Wearplates LH

Start Date: 9/02/14 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 9/05/14 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:

Run Start

NR1

QC: Date: SPC (Y/N): Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
IIN-D119-646	B								

102

0.00

102

Skidtubes

Skidtubes

Memo

0.00

PULL FROM STK:

5 X D119-646-212

~~B117377~~

✓ B117613

✓ B117614

✓ B121123

✓ B121124

✓ B121125

✓ 4 X D119-646-211

✓ B120985

~~B121926~~

~~B122219~~

✓ B122219

122219

REWORK INSIDE DIAMETER OF GHW CROSSBOLT SPACERS TO MAX

SIZE

PINS MUST SPIN FREELY

DAS
9
989
14-09-04

DP 14-9-4

DP 14-9-4

September-02-14 9:15:55 AM

123917

Page 2

Accept

N900040100

Setup Start ***NCS1***

Stop *NS2*

Item Name: Skidtube with Run-On Landing Wearplates LH

Start Date: 9/02/14 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 9/05/14 **Req'd Qty:** 1.00 ***1***

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

105

0.00

105

0.00

QC

Memo

Quality Control

MUST BE INSPECTED BY ERIC D OR PAT D.

⑧ 14-09-04 DAS
9
9-89
5 RH 3/24

110

Pick Kit

0.00

1 1 0

Packaging

Memo

0.00

Packaging

ENSURE ORIGINAL KIT IS IN BOX

DAS
06
9-89

120

QC4- 100% Inspect kits for completeness

0.00

120

QC

Memo

0.00

Quality Control

DAS
06
9-89

Work Order ID 123917

September-02-14 9:15:55 AM

123917

Page 3

Item ID: D119-646-211

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Skidtube with Run-On Landing Wearplates LH

Start Date: 9/02/14

Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/05/14

Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run

Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

0.00

130

Packaging

Memo

0.00

REPACKAGE USING ORIGINAL B/N

Identify and pack for shipping as per PPP D119-646-211

Location: _____

PPP rev: _____

DAS
06
9-89

SEP 08 2014

140

QC21- Final Inspection - Work Order Release

0.00

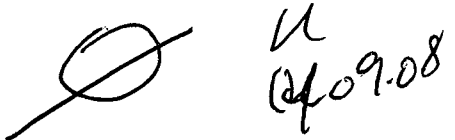
140

QC

Memo

0.00

Quality Control

A handwritten signature, possibly 'U', followed by the date '09.08'.

List Lots

Page 1 of 1

September-02-14 8:41:38 AM

Criteria : Item ID: d119-646-211 All Locations All Warehouses All Quantity

Item ID Item Name	Warehouse ID Location ID	Lot Number	Last Trans Date	Lot Qty	Shelf Life Dt Lot Code	Type Code	Comments
D119-646-211 Skidtube with Run-On Landing Wearplates LH	Main Warehouse FG084	120985	8/13/14	1.0000	QC21	CHG004	
	Main Warehouse FG084	121926	8/13/14	1.0000	QC21	CHG004	
	Main Warehouse FG084	122218	8/13/14	1.0000	QC21	CHG004	
	Main Warehouse FG084	122219	8/13/14	1.0000	QC21	CHG004	
Total:				4.0000			

List Lots

September-02-14 8:41:42 AM

Page 1 of 1

Criteria : Item ID: d119-646-212 All Locations All Warehouses All Quantity

Item ID	Warehouse ID	Lot Number	Last Trans Date	Lot Qty	Shelf Life Dt	Type Code	Comments
Item Name	Location ID				Lot Code		
D119-646-212 Skidtube with Run-on Landing Wearplates RH	Main Warehouse FG084	117377	8/25/14	1.0000	QC21	CHG004	123907
	Main Warehouse FG084	117613	8/25/14	1.0000	QC21	CHG004	
	Main Warehouse FG084	117614	8/25/14	1.0000	QC21	CHG004	
	Main Warehouse FG084	121123	8/25/14	1.0000	QC21	CHG004	
	Main Warehouse FG084	121124	8/25/14	1.0000	QC21	CHG004	
	Main Warehouse FG084	121125	8/25/14	1.0000	QC21	CHG004	
Total:				6.0000			

Linda Lacelle

From: Eric Downing
Sent: September-02-14 7:53 AM
To: Linda Lacelle
Cc: Patrick Smith
Subject: Re: DART visit to assess ground handling wheels fit issues - [AW Internal Use ONLY]

Linda

Then create a custom work order to do all the reworking. I would suggest all the work to be done on one rework work order and re package under the original batch numbers.

And have it on the work order that the pins must spin freely and must be inspected by Patrick Duval or Eric Downing

Hope this helps

Sent from my iPhone

On Sep 2, 2014, at 7:42 AM, "Linda Lacelle" <llacelle@dartaero.com> wrote:

Ok, do you know when this will be done? Skidtubes is pretty slow right now, so it would be a good time to do them all...

Thx

L

From: Eric Downing
Sent: September-02-14 7:30 AM
To: Linda Lacelle
Cc: Patrick Smith
Subject: Re: DART visit to assess ground handling wheels fit issues - [AW Internal Use ONLY]

Linda

All the 119's in stock should be reworked to have the inside diameter of the ghw cross bolt spacers to max size.

So nothing should be packaged.

Eric

Sent from my iPhone

On Sep 2, 2014, at 7:16 AM, "Linda Lacelle" <llacelle@dartaero.com> wrote:

Pat/Eric? Are the ones ready to package ok to package?

LL

From: Marc Bellavance

Sent: August-29-14 1:00 PM

To: Linda Lacelle

Cc: Mike Petsche; Melanie Fauteux; Mario Poulin; Laith Qatami; Sian Willems; Patrick Smith; Eric Downing; Nigel Forbes

Subject: Re: DART visit to assess ground handling wheels fit issues - [AW Internal Use ONLY]

My understanding is that all D119-646-XXX Skidtubes in stock have been or will be reworked. QC and Landing Gear are to work together in improving the QC Jig and manufacturing process in accordance with our findings.

EricD, feel free to correct me or add any info I might have missed.

Marc

Sent from my iPhone

On Aug 29, 2014, at 12:56, "Linda Lacelle" <llacelle@dartaero.com> wrote:

Hi,

Has this been resolved, or do we still have to quarantine all the 119 skids? We have quite a few ready to package and would like to know what to do with them...

Thx

L

From: Marc Bellavance

Sent: August-21-14 12:27 PM

To: Nigel Forbes

Cc: Bill Beckett; Linda Lacelle; Melanie Fauteux; Mario Poulin; Laith Qatami; Pete Olep; Mike Petsche; Sian Willems; Patrick Smith; Eric Downing

Subject: FW: DART visit to assess ground handling wheels fit issues - [AW Internal Use ONLY]

Importance: High

Hi Nigel,

Please see email received from Martin on Tuesday. I've already touched base with most of you earlier today however we will be meeting on Wednesday to discuss further. A meeting invite will be sent before end of this week.

Also, and as discussed with Bill earlier today, please hold production/shipment of all A119 skidtubes until further notice.

Thanks,
Marc

From: Cameron Martin [<mailto:Martin.Cameron@agustawestland.com>]

Sent: August-19-14 4:48 PM

To: Spampinato Giovanni; Hun Senkosal; Infante Carlos A.; Delli Carpini Marco; Singh Anuj; McDonald Michael; Seiter Anthony; Garreta Lluís; Marc Bellavance; Leathead Gordon; Reale Francesco; Alighieri Dante; Oliveto Mario C.; Sian Willems; Jones Eric; Pokorney Aaron; Sian Willems; Jones Eric; Pokorney Aaron

Cc: Lemieux Christopher; Cavicchia Massimiliano; Decky Kevin

Subject: RE: DART visit to assess ground handling wheels fit issues - [AW Internal Use ONLY]

All,

Notes of the fitting of the FWD Ground Handling Wheels on DART Skid tubes part number D119-646-211/212 on the AW119MKII. Marc Bellavance from DART supported the assessment along with Engineering and QC from P145 Completions and P21 Production:

Firstly Marc was shown the AW standard ground handling wheels and how they were installed onto the DART tubes, a check on the 3 aircraft above in the P145 hanger resulted in the wheels only being able to be installed on one of the tubes on 14786. The tubes on 14792 were installed on the aircraft late in 2013 those on 14826 and 14786 were installed within the last 3 months, aircraft records for the Skid Tubes did not include the batch numbers. A check was then made using the DART jig and gave the same results as the wheels except it was possible to install the jig on one other set of Skid Tubes though it was tight. The jig was then used for a fit check on the aircraft in the P21 hanger and the warehouse, overall results as follows:

Skid Tubes assessed:

Results

3 sets on aircraft in the P145 hanger non 14792, 14826 and 14786	Wheels fitted on one skid tube,
Jig was able to be installed on two skid tubes, was tight on the second	

2 sets in the P21 hanger on 14827 and 14829
skid tubes, it would not fit on the LH skid tube on 14827

Jig was able to fit easily on 3 of the 4

2 sets in the warehouse Jig fitted easily on two of the skid tubes, would not fit on one of the skid tubes, and was just

Conclusion

AWPC reviewed the Jig DART use for the drilling of the cross tubes, this jig is a very simple bar that picks up on the fwd saddle hole on each side of the tube, each is then drilled independently against this reference. Therefore any error in the saddle hole dimensions side to side and any error in the drilling is transferred to the skid tube handling wheel holes. The drilling jig does not prevent horizontal drilling errors across the tube and transfers longitudinal errors where they exist from the saddle reference point. It is the opinion of AWPC that the holes must be match drilled using a one piece jig that straddles the fwd end of the cross tube and also defines the longitudinal position. A single piece jig will prevent longitudinal and cross tube errors and should ensure good wheel assembly fit.

It was also noted that when the test jig fitted easily the wheels fitted well though with slightly less slack, where the test jig was hard to fit the wheels would not fit. Suggesting the test jig general tolerances are not as tight as the hole tolerances in the wheel assembly. The reverse should be the case so if the jig fits it guarantees the wheels will fit.

Regards

Martin

-----Original Appointment-----

From: Cameron Martin

Sent: Monday, August 18, 2014 11:54 AM

To: Cameron Martin; Spampinato Giovanni; Hun Senkosal; Infante Carlos A.; Delli Carpini Marco; Singh Anuj; McDonald Michael; Seiter Anthony; Garreta Lluís; 'Marc Bellavance'; Leathead Gordon; Reale Francesco; Alighieri Dante; Oliveto Mario C.
Cc: 'Sian Willems'; Pokorney Aaron; Jones Eric
Subject: DART visit to assess ground handling wheels fit issues
When: Tuesday, August 19, 2014 10:00 AM-11:00 AM (UTC-05:00) Eastern Time (US & Canada).
Where: Completions Engineering Meeting Area

Recently we have sent several sets of DART Skid tubes back to DART due to ground handling wheels not fitting, DART stated last week they had recently checked 4 tubes and in their view the wheels should fit as they had manufactured a Jig that matched a pair of wheels they had been loaned by a customer.

Marc Bellavance' is here to review fit issues between the AW Ground Handling Wheels and the DART Skid Tubes.

We will have the DART test jig used during Skid Tube manufacture and two sets of AW Ground Handling wheels, one new and one used.

In P145 we have two sets of DART Skid Tubes on Aircraft and also plan to make check fits on aircraft in P21, also in P145 we have several sets of AW Skid Tubes for comparison.

First we will meet to discuss plan for the day then go out to the hanger and check the fit

<image001.jpg>

Martin Cameron

Senior Manager, Completions & Maintenance Eng

3050 Red Lion Rd

Philadelphia - PA - United States

Tel. +12152811424 - Fax +1 215 2811284

www.agustawestland.com

<image002.png>

Please consider the environment before printing this email.

This transmission is strictly confidential and intended solely for its addressee. If you are not the intended addressee please return to sender immediately; you should destroy this email and any use, disclosure or copying is not authorized and may be illegal. The information contained in this E-Mail and any subsequent correspondence may be subject to Export Control rules and its misuse could be a criminal offence in some jurisdictions. This transmission is not intended nor to be construed to impose any legally binding obligation upon the organization from which it originates ("the Company") and/or any of its subsidiaries or associated companies, none of which gives any representation or warranty as to the accuracy or

completeness of this transmission's contents. No liability shall be assumed to any person resulting from the use of any information contained in this transmission or to any person who acts or omits to do anything in reliance upon it. For legally required Company Information go to http://www.agustawestland.com/legal_entity.html

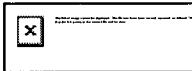
From: Carrie Pearson [<mailto:cpearson@dartaero.com>]
Sent: Friday, August 29, 2014 11:17 AM
To: Coelho Anita
Subject: RE: (2014 Delivery) US01

Hello Anita

I was calling your number however it is transferring to your home line!

Just confirming if you will be placing your order today!
Kind Regards

CARRIE PEARSON
Sales Manager



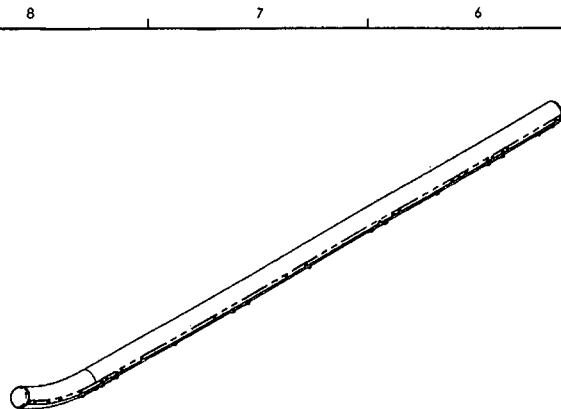
From: Coelho Anita [<mailto:Anita.Coelho@agustawestland.com>]
Sent: August 26, 2014 8:48 AM
To: Carrie Pearson
Subject: RFQ: (2014 Delivery) US01

Hi Carrie,

Can you please send Quote for the following parts:

			Qty	Delivery	
AV	D119-646-212	R/H skid run-on landing wear plate kit	2	9/17/2014	
AV	D119-646-211	L/H skid run-on landing wear plate kit	2	9/17/2014	
AV	649.4701	A119 CABLE CUTTERS KIT	1	10/13/2014	
AV	649.4701	A119 CABLE CUTTERS KIT	1	11/7/2014	
AV	649.4701	A119 CABLE CUTTERS KIT	1	12/9/2014	

Thanks,
Anita



D3887-041 STANDARD SKIDTUBE ASSY WITH WEARPAD (SHOWN)
D3887-043 STANDARD SKIDTUBE ASSY WITH WEAPLATE (SIMILAR)
D3887-045 STANDARD SKIDTUBE ASSY WITH TRAINING WEARPLATE (SIMILAR)

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIOR TO INSERTING D3885-1 WEB
POWDER COAT "WHITE" (4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED TO 0.5 ABOVE LOCATION RIDGE PER DART QSI 005 4.4
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D3887-041 = 32.0 lbs
D3887-043 = 37.0 lbs
D3887-045 = 38.1 lbs
- 8) WELD PER DART QSI 004
- 9) DAMAGE TOLERANCE ON FWD BEND:
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 8.5 INCHES
ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP 0.020" DEEP IN THE BENT
PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT
PORTION OF THE TUBE.
- 10) INSERT D3885-1 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE
WITH SIKAFLEX-241/291 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP
- 11) INSERT D3492-045 PLUG ASSY INTO Ø0.197 HOLES (BOTH SIDES OF TUBE)
- 12) USE DART DRILL TEMPLATE DT8931 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARPLATE INSERTS.
INSTALL AELS-1032-130 INTO D3887-11 ONLY. INSTALL AN3C5A BOLTS AND NAS1149C0332R WASHERS
WITH SIKAFLEX-241/291.

ITEM	QTY -041	QTY -043	QTY -045	P/N	DESCRIPTION
1	X			D3887-041	STD SKIDTUBE ASSY WITH WEARPAD
2		X		D3887-043	STD SKIDTUBE ASSY WITH WEARPLATE
3			X	D3887-045	STD SKIDTUBE ASSY WITH TRAINING WEARPLATE
10	2	2	2	D2579	CROSS BOLT SPACER
11	2	2	2	D2855-3	CAP
12	16	16		D3492-045	PLUG ASSY
13	2	2	2	D3672-1	PHENOLIC WASHER
14	8	8	8	D3681-1	SPACER
15	5			D3846-1	GASKET
16	1			D3846-11	GASKET
17	5	5		D3847-1	WEARPAD
18	1	1		D3847-11	AFT WEARPAD
19		1		D3847-043	FWD WEARPLATE ASSY
20		1		D3847-045	CENTER WEARPLATE ASSY
21		1		D3847-047	AFT WEARPLATE ASSY
22			1	D3849-041	FWD TRAINING WEARPLATE ASSY
23			1	D3849-043	AFT WEARPLATE ASSY
24	1	1	1	D3885-1	STANDARD WEB
25	1	1		D3887-11	STANDARD SKIDTUBE
26			1	D3887-13	STANDARD SKIDTUBE
27	12	12	12	D3903-1	SPACER
28			16	D3904-1	WASHER
41	30	30		ALS4-1032-130	INSERT
42	32	32	2	AN3C5A	BOLT
43			8	AN3C46A	BOLT
44	32	32		NAS1149C0332R	WASHER (OR AN960C10L)
45			8	MS21043-3	NUT
46	2	2	2	MS24694-C52	SCREW

WLB 123917

RELEASED
2013-03-19

C	(SHT1, P/L, ZN C2-2, C3-2, C4-2) ITEM 13, QTY 2 WAS 4, ITEM 42, QTY 32 WAS 34, ITEM 44, QTY 30 WAS 32, ADD ITEM 46, MS24694-C52 WAS AN3C5A, 2 PLCS (ZN C1-5, C1-6, B4-7) Ø0.201 CSK Ø0.385 X 100" WAS Ø0.214 THRU, ADDED DETAIL F (ZN C8-5, C8-6, B8-7), ADD ITEM 10, D2579 CROSS BOLT SPACER (ZN D4-1, A6-7)	DB	13.02.19
B	ALS4-1032-130 WAS AELS-1032-130 (ZN C4-1, C5-7, C3-7); ADD DT8931 (ZN A8-1); ADD 134.04 (ZN C4-8); D2855-3 WAS D2575 (ZN D4-1, C7-2, C2-2, C7-3, C2-3, C7-4, C2-4); AN3C5A WAS AN3C4A (ZN C6-2, C2-2, C6-3, C2-3, C6-4, C2-4); Ø0.315 WAS Ø0.328 (ZN C4-5, C4-5, C2-5 & B3-7) REVISED NOTE iv (ZN B3-7)	RF	09.06.30
A	NEW ISSUE	RF	09.03.30
REV	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	DB	KENT, WA	
CHECKED	<i>JS</i>	DRAWING NO.	REV. C
MFG. APPR.	<i>JS</i>	D3887	SHEET 1 OF 8
APPROVED	<i>JS</i>	TITLE	SCALE
DE APPR.	<i>JS</i>	A119 STD SKIDTUBE ASSY	NTS
DATE	13.02.19	COPYRIGHT © 2009 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR DISCLOSED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

AN3C5A BOLT
D3672-1 PHENOLIC WASHER
NAS1149C0332R WASHER
(1 PER SIDE)

SEAL WITH
SIKAFLEX-241/291

D2855-3 CAP

D3846-11
GASKET

D3847-11
WEARPAD

BLACK ANTI-SKID TO 0.5
ABOVE LOCATION RIDGE
TYP

11
Ø0.197
8 PL PER SIDE
REF

1.5 1.5 1.5

2.00 DISTANCE TO D3885-1 WEB, REF

AN3C5A BOLT
NAS1149C0332R WASHER
24 PL

PLUG UNUSED INSERTS WITH
AN3C5A BOLT
NAS1149C0332R WASHER
6 PL

D3846-1
GASKET
5 PL

D3847-1
WEARPAD
5 PL

D2855-3 CAP

1.5

SEAL WITH
SIKAFLEX-241/291

MS24894-C52 SCREW
(1 PER SIDE)

D3887-041 STANDARD SKIDTUBE ASSY WITH WEARPAD
(MAKE FROM D3887-11)

RELEASED
2013-03-19
MD

DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	DB	KENT, WA	
CHECKED	AS	DRAWING NO.	REV. C
MFG. APPR.	DA	D3887	SHEET 2 OF 8
APPROVED	MA	TITLE	SCALE
DE APPR.	MA	A119 STD SKIDTUBE ASSY	NTS
DATE	13.02.19	<small>COPYRIGHT © 2009 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

AN3C5A BOLT
D3672-1 PHENOLIC WASHER
NAS1149C0332R WASHER
(1 PER SIDE)

SEAL WITH
SIKAFLEX-241/291

D2855-3 CAP

D3847-11
WEARPAD

D3847-047
AFT WEARPLATE ASSY

AN3C5A BOLT
NAS1149C0332R WASHER
30 PL

D3847-045
CENTER WEARPLATE ASSY

D3847-043
FWD WEARPLATE ASSY

D3847-1
WEARPAD
5 PL

BLACK ANTI-SKID TO 0.5
ABOVE LOCATION RIDGE
TYP

11
Ø0.197
8 PL PER SIDE
REF

D2855-3 CAP

SEAL WITH
SIKAFLEX-241/291

MS24694-C52 SCREW
(1 PER SIDE)

D3887-043 STANDARD SKIDTUBE ASSY WITH WEARPLATE
(MAKE FROM D3887-11)

RELEASED
2013-03-19

DESIGN	RF	DART AEROSPACE USA, INC. KENT, WA	
DRAWN	DB		
CHECKED	ASS	DRAWING NO.	REV. C
MFG. APPR.	DS	D3887	SHEET 3 OF 8
APPROVED	149	TITLE	SCALE
DE APPR.	ST	A119 STD SKIDTUBE ASSY	NTS
DATE	13.02.19	<small>COPYRIGHT © 2009 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PROPRIETARY AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

AN3C5A BOLT
D3672-1 PHENOLIC WASHER
NAS1149C0332R WASHER
(1 PER SIDE)

SEAL WITH
SIKAFLEX-241/291

D2855-3 CAP

AN3C46A BOLT
D3904-1 WASHER, 2 PL
MS21043-3 NUT
8 PL

D3849-043
AFT TRAINING WEARPLATE ASSY

BLACK ANTI-SKID TO 0.5
ABOVE LOCATION RIDGE
TYP

1.5 1.5 1.5

1.5 1.5 1.5
2.00 DISTANCE TO D3885-1 WEB

D2855-3 CAP

SEAL WITH
SIKAFLEX-241/291

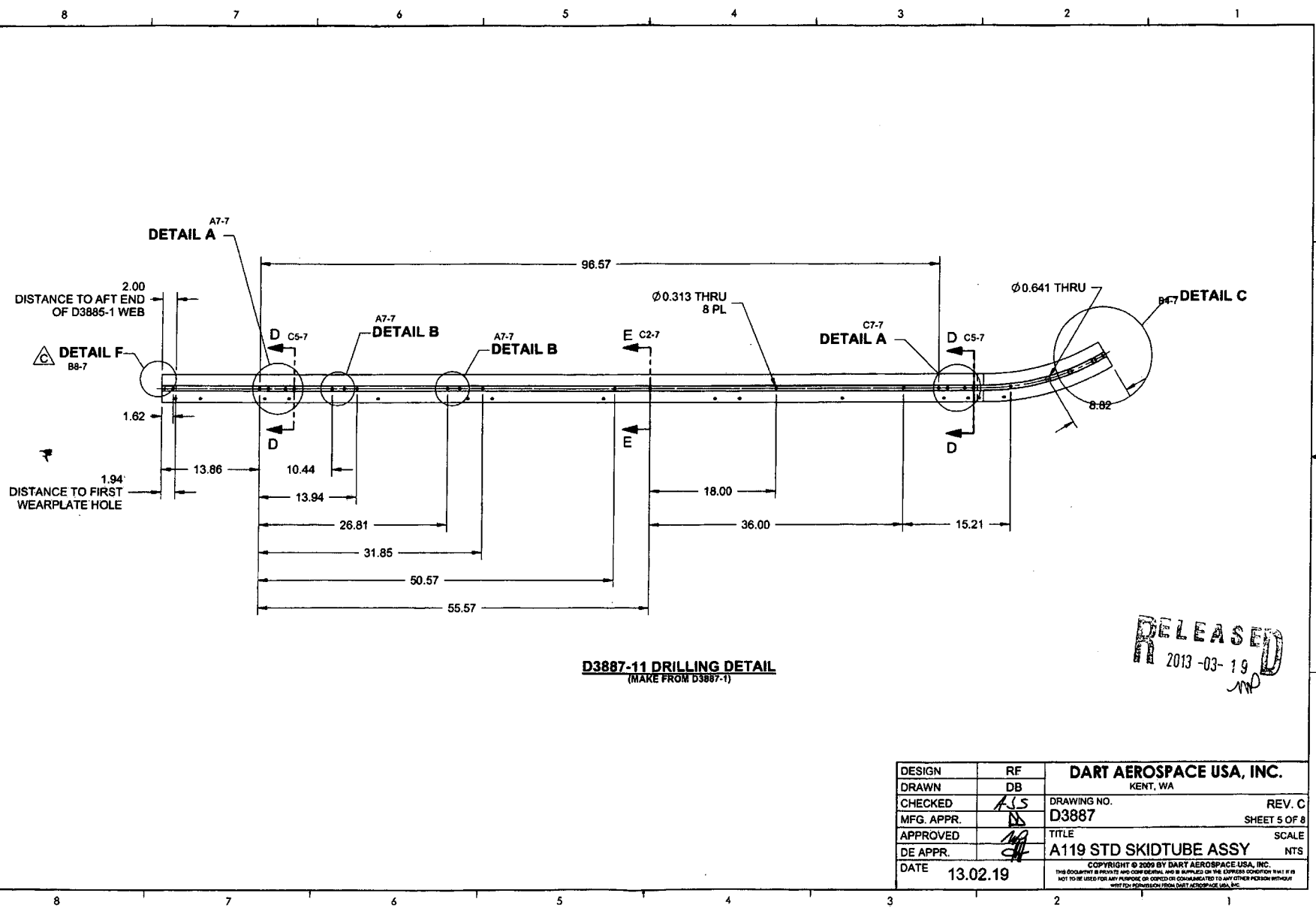
MS24694-C52 SCREW
(1 PER SIDE)

D3849-041
FWD TRAINING WEARPLATE ASSY

D3887-045 STANDARD SKIDTUBE ASSY WITH TRAINING WEARPLATE
(MAKE FROM D3387-13)

RELEASED
2013-03-19
mp

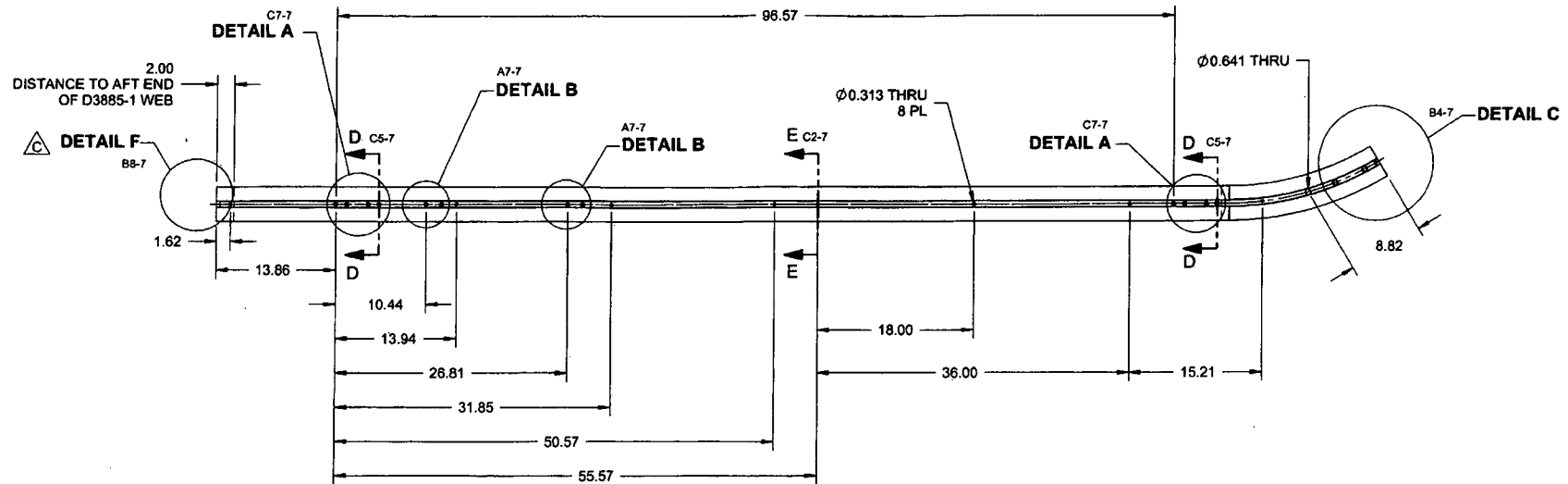
DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	DB	KENT, WA	
CHECKED	<i>AS</i>	DRAWING NO. D3887	REV. C
MFG. APPR.	<i>N</i>	SHEET 4 OF 8	
APPROVED	<i>mp</i>	TITLE	SCALE
DE APPR.	<i>H</i>	A119 STD SKIDTUBE ASSY	NTS
DATE	13.02.19	<small>COPYRIGHT © 2009 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	



D3887-11 DRILLING DETAIL
(MAKE FROM D3887-1)

RELEASED
2013-03-19

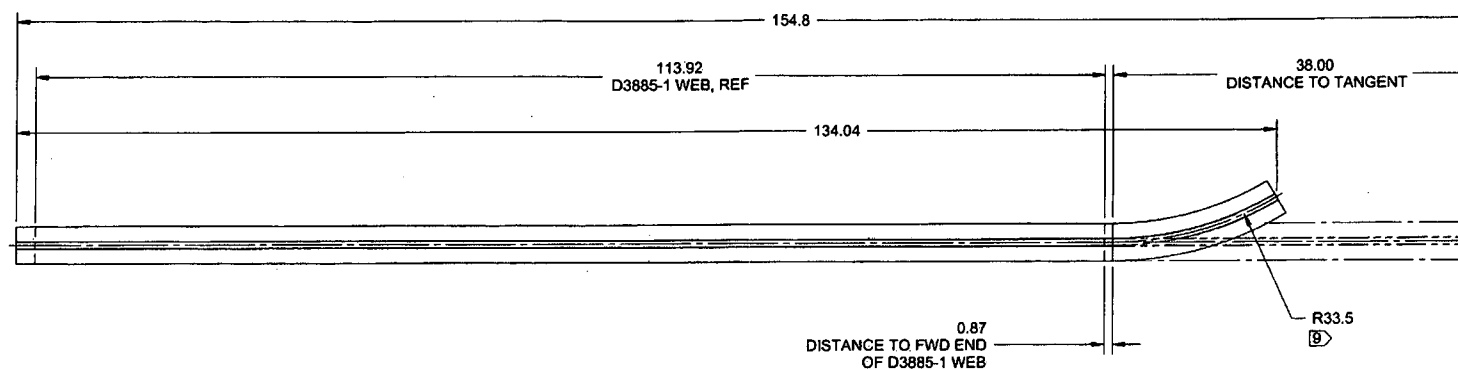
DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	DB	KENT, WA	
CHECKED	AS	DRAWING NO.	REV. C
MFG. APPR.	AS	D3887	SHEET 5 OF 8
APPROVED	MA	TITLE	SCALE
DE APPR.	MA	A119 STD SKIDTUBE ASSY	NTS
DATE	13.02.19	<small>COPYRIGHT © 2009 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS UNCLASSIFIED AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE, OR REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	



D3887-13 DRILLING DETAIL
(MAKE FROM D3887-1)

RELEASED
2013-03-19

DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	DB	KENT, WA	
CHECKED	<i>AJS</i>	DRAWING NO. D3887	REV. C SHEET 6 OF 8
MFG. APPR.	<i>[Signature]</i>	TITLE	SCALE
APPROVED	<i>[Signature]</i>	A119 STD SKIDTUBE ASSY	
DE APPR.	<i>[Signature]</i>	NTS	
DATE	13.02.19	<small>COPYRIGHT © 2009 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	



D3887-1 BEND DETAIL
(MAKE FROM D2500-1-190 EXTRUSION)

RELEASED
2013-03-19

DESIGN	RF	DART AEROSPACE USA, INC. KENT, WA	
DRAWN	DB		
CHECKED	<i>ASS</i>	DRAWING NO. D3887	REV. C
MFG. APPR.	<i>ND</i>	SHEET 8 OF 8	
APPROVED	<i>ND</i>	TITLE	SCALE
DE APPR.	<i>SH</i>	A119 STD SKIDTUBE ASSY	NTS
DATE	13.02.19	<small>COPYRIGHT © 2009 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE, OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	